

KhybridThermal.xls

Cu/Polyimide hybrid 12µm Copper, version4

Normalise to 74.6 x 21 mm² = 1566.6

Item	Thickness (mm)	Actual area (mm ²)	Scaled thickness (mm)	Thermal conductivity (W/m/K)
Hybrid				
Gold flash	0.0004	686	0.0002	310
Nickel plating	0.002	686	0.0009	100
Solder resist layer	0.02	1000	0.0128	0.12
L1:Cu + Cu-TH plating (60% hash)	0.025	686	0.0109	400
Polyimide +adhesive (25um+25um) layer	0.05	1567	0.05	0.12
L2: Cu tracking	0.012	298	0.0023	400
Polyimide layer	0.025	1567	0.025	0.12
L3: Cu gnd plane	0.012	1455	0.0111	400
Polyimide+adhesive (25um+25um) layer	0.05	1567	0.05	0.12
L4: Cu + Cu-TH plating (60% hash)	0.025	694	0.0111	400
Polyimide cover +adhesive (13um+33um) layer	0.046	1567	0.046	0.12
Thermal+conductive adhesive layer	0.05	1567	0.05	1
Carbon-carbon bridge				
Parylene top layer (w/Opening for Thermal THs area)	0.01	1462	0.0093	0.12
Carbon-carbon bridge (main area)	0.3	1567	0.3	700/35 (x/yz)
Carbon-carbon bridge (step area)	0.5			
Parylene bottom layer	0.01	1567	0.01	0.12
Thermal Thru-Holes (Front part of the chip, direct contact to CC)				
Thru-hole diameter (mm)	0.3			
Weighted thermal conductivity (W/m/K)	37.5			
No. of thermal THs per chip	17			
Thermal TH area (2.5 x 7 mm ²) per chip	17.5			